Newry & Mourne District Council

Local Air Quality Progress Report

October 2007

Executive Summary

Under the Local Air Quality Management (LAQM) regime, introduced by the Environment (NI) Order 2002, Newry and Mourne District Council has a duty to review and assess local air quality against health-based, statutorily prescribed pollutant limits and to undertake measures aimed at reducing pollutant levels where appropriate.

Following completion of the first round of review and assessment the Council designated five Air Quality Management Areas (AQMAs) within Newry City in April 2006. The AQMAs were declared for PM10 and NO2 at the streets, Water Street, Kilmorey Street, Bridge Street, St Mary Street, and Canal Street. The Council has established a Working Group of local partner agencies who are currently working towards the development of an Action Plan for the AQMAs.

In October 2006 the Council completed its Updating and Screening Assessment. This involved undertaking an assessment of whether statutory air quality standards and objectives were being achieved or likely to be achieved within relevant periods. Seven specific pollutants considered were carbon monoxide (CO), benzene, 1,3-butadiene, nitrogen dioxide (NO2), lead, sulphur dioxide (SO2) and PM10 (Particles under 10µm in diameter). The conclusion of this report was that Newry and Mourne District Council was not required to proceed to a more detailed assessment for any of the prescribed pollutants and that it would implement an Action Plan to deal with the air quality issues in the 5 AQMA's.

Since the previous Progress Report submitted in April 2005 this Council has expanded its air quality monitoring network within Newry City. This has resulted in an increase in NO2 diffusion tube sites from 6 to 28. An additional automatic Air Quality Monitoring Station has been established within the existing AQMA at Bridge Street, Newry. Within this station PM10 and NO2 are monitored. The automatic Air Quality Monitoring Station at Trevor Hill continues to monitor PM10, SO2 and NO2. The automatic Air Quality Monitoring Station at Monaghan Row monitors PM10 and SO2. At this station the NO2 analyser was removed and relocated to Bridge Street.

A comprehensive review of the air quality monitoring network has been completed and the recommendations of this review are being implemented.

This report provides a summary of air quality monitoring results for the calendar years 2005 and 2006. NO2 diffusion tube monitoring data for 2006 in Sandy Street, Newry, which is outside of the existing AQMAs, is showing exceedences of the annual mean objective. This location is already being considered within the action plan in order to avoid the Council preparing separate action plans over different timescales.

This report has been produced in accordance with guidance detailed in Progress Report Guidance LAQM.PRGNI(04), and summarises the findings of the LAQM activities undertaken by the Council including the currently available air quality monitoring results for 2006.

Contents

1.0 Introduction

1.1 Purpose and Role of Progress Reports

This progress report has been prepared as part of Newry and Mourne District Council's responsibilities under the Environment (Northern Ireland) Order 2002. The progress report has been introduced into the local air quality management system, as a means of combating the 'stop-start' approach to environmental reporting and integrate the concepts of local air quality management into the routine of local authority operations.

The overall aims of this progress report are to:

- Report progress on implementing local air quality management.
- Report progress in achieving and maintaining concentrations of prescribed pollutants below the air quality objectives.

This report has been prepared in accordance with the Environment & Heritage Service guidelines as published in Progress Report Guidance LAQM.PRGNI(04), November 2004.

1.2 Air Quality Strategy Objectives

The following air quality objectives set out in the Air Quality Regulations (NI) 2003 provide the statutory basis for the system of Local Air Quality Management.

Table 1.1: Air Quality Strategy Objectives

Pollutant	Objective	Measured as	To be achieved by
Benzene	3.25 µg/m^3	Running Annual Mean	31/12/2010
1,3-Butadiene	2.25 µg/m^3	Running Annual Mean	31/12/2003
Carbon monoxide	10.0 mg/m^3	Maximum daily running 8 Hour Mean	31/12/2003
Lead	0.5 µg/m^3	Annual Mean	31/12/2004
	0.25 µg/m^3	Annual Mean	31/12/2008
Nitrogen dioxide	200 µg/m^3 Not to be exceeded more than 18 times per year	1 Hour Mean	31/12/2005
	40 µg/m^3	Annual Mean	31/12/2005
Particles (PM_{10}) (gravimetric)[d]	50 µg/m^3 Not to be exceeded more than 35 times per year	24 Hour Mean	31/12/2004
	40 µg/m^3	Annual Mean	31/12/2004
Sulphur Dioxide	266 µg/m^3 Not to be exceeded more than 35 times per year	15 Minute Mean	31/12/2005
	350 µg/m^3 Not to be exceeded more than 24 times per year	1 Hour Mean	31/12/2004
	125 µg/m^3 Not to be exceeded more than 3 times per year	24 Hour Mean	31/12/2004

1.3 Conclusions of Updating and Screening Assessment October 2006

PM_{10}

Newry and Mourne District Council submitted its Updating and Screening Assessment in October 2006. Having considered all relevant background, industrial and traffic criteria it was found that there was little likelihood of exceeding the 2004 air quality objectives for PM_{10} at that time outside the existing AQMA's.

SO_2

Newry and Mourne District Council considers that there is unlikely to be an exceedence of the 15 minute objective for 2005, or 1 hour or 24 hour objective for 2004, for sulphur dioxide.

NO_2

The Updating and Screening Assessment concluded that the risk of the 2005 objectives for nitrogen dioxide being exceeded outside existing AQMA's in the district was negligible for all sources. The results for monitoring within an AQMA show that there is an exceedance of the annual mean objective limit for NO2 diffusion tube sampling at Water Street in Newry. However, since Water Street is currently within an existing AQMA, there was no requirement to progress to a detailed assessment at this time.

Other Prescribed Pollutants – Benzene, Carbon Monoxide (CO), 1,3-Butadiene, & Lead

These pollutants were all screened out at the Updating and Screening Assessment, as being insignificant in terms of potential for exceedence of prescribed standards. Consequently no monitoring of these pollutants has been initiated in the council area.

2.0 New Monitoring Data

2.1 Summary of Monitoring Undertaken During 2005 and 2006

Newry and Mourne District Council undertakes ambient monitoring of the following pollutants in their area:

- **PM_{10}** (by Automatic Air Monitoring Equipment)
- **NO_2** (by Automatic Air Monitoring Equipment & Diffusion Tube)
- **SO_2** (by Automatic Air Monitoring Equipment & Diffusion Tube)

Table 2.1 below details the site locations

Table 2.1: Air Quality Monitoring In Newry and Mourne District Council

Pollutant	Equipment	Location	Eastings	Northings
PM_{10}	TEOM series 1400a	Monaghan Row, Newry	307852	326758
	TEOM series 1400a	Trevor Hill, Newry	308707	326831
	TEOM series 1400a	Kilkeel Town Hall, Kilkeel *	N/A	N/A
	TEOM series 1400a	Bridge Street **	308329	325794
SO_2	Fluorescent Real-Time Analyser 100A	Monaghan Row, Newry	307852	326758
	Fluorescent Real-Time Analyser 100A	Trevor Hill, Newry	308707	326831
NOx & NO_2	Chemiluminesence Real-Time Analyser Model 200A	Monaghan Row, Newry *	307852	326758
	Chemiluminesence Real-Time Analyser Model 200A	Trevor Hill, Newry	308707	326831
	Chemiluminesence Real-Time Analyser Model 200A	Bridge Street **	308329	325794

* Located at this site during the period 1st January 2005 to 31st December 2005
** Located at this site during the period 29th June 2006 to Present

Table 2.1.1 :NO_2 Diffusion Tube Monitoring in Newry and Mourne District Council

Pollutant	Equipment	Location	Eastings	Northings
NO_2	Nitrogen Dioxide Diffusion Tubes	Patrick Street (Kerbside)	308043	326608
		Dominic/Francis Street (Kerbside)	308168	326184

		197 Dublin Road, Newry (Kerbside)	307985	321179
		Basin View Terrace, Newry (Kerbside)	308237	325611
		60 Bridge Street, Newry (Kerbside)	308329	325794
		18 Bridge Street, Newry (Kerbside)	308419	325866
		33 Kilmorey Street, Newry (Kerbside)	308666	325911
NO_2	Nitrogen Dioxide Diffusion Tubes	52 Kilmorey Street Newry (Kerbside)	308728	325872
		Lower Water Street Newry (Kerbside)	308655	326480
		Water Street Newry (Kerbside)	308682	326593
		High Street Newry (Kerbside)	308802	326378
		North Street Newry (Kerbside)	308714	326614
		18 St Mary's Street Newry (Kerbside)	308472	326176
NO_2	Nitrogen Dioxide Diffusion Tubes	42 St Mary's Street Newry (Kerbside)	308493	326118
		Canal Street Newry (Kerbside)	308536	326867
		7 New Street Newry (Kerbside)	308564	326911

		59 Canal Street Newry (Kerbside)	308468	326988
		Armagh Road Newry (Kerbside)	307691	328125
		Fairlawns Way Newry (Kerbside)	307493	328471
		Glinn Ree Court Newry (Kerbside)	308877	327148
NO_2	Nitrogen Dioxide Diffusion Tubes	Trevor Hill Monitoring Station Newry (Kerbside)	308709	326138
		Kildare Street Newry (Kerbside)	308688	326665
		Stone Bridge Newry (Kerbside)	308664	326707
		Sandy Street Newry (Kerbside)	308927	326863
		Balmoral Park Newry (Urban Background)	309191	327474
		Rathfriland Road Newry (Kerbside)	309410	327291
		Derrybeg Villas Newry (Kerbside)	307163	327556
NO_2	Nitrogen Dioxide Diffusion Tubes	Edward Street Newry (Kerbside)	308480	326753
		52 Abbey Yard Newry (Kerbside)	308734	325990
		Monaghan Row Newry (Urban Background)	307850	326742

Roadside = 1-5m from kerb, urban background = at least 50m from the kerb of any major road.

No other pollutants prescribed in the Air Quality Regulations (NI) 2003 are monitored in the area covered by Newry and Mourne District Council.

Note: A summary of the air quality monitoring data carried out in the calendar years of 2003 and 2004 is provided in the council's Progress Report submitted in 2005.

2.1.1 Automatic Monitoring Stations

PM_{10}

There are two Air Quality Objectives associated with PM_{10} concentrations which have been derived from the EU Stage 1 limit values in the first Air Quality Daughter Directive. These limits are currently referenced in the Local Air Quality Management, Technical Guidance Document TG(03) as 40µg/m^3 annual mean and 50µg/m^3 as the 24 hour mean not to be exceeded more than 35 days per year (also see Table 1.1).

Newry and Mourne District Council have 3 Rupprecht & Patashnick Continuous Analyser (TEOM series 1400ab); one located at Trevor Hill, Newry; another at Monaghan Row, Newry; and Bridge Street, Newry (see Appendix A, figure 1). The sites at Trevor Hill and Bridge Street are busy roads within the city centre. The Trevor Hill site is at the edge of Water Street AQMAn whilst the Bridge Street is within an existing AQMA. These are considered as roadside sites and are close to transport links where there is a heavy daily traffic flow. The site at Monaghan Row is located at the council offices. This is considered as an urban background site, due to its close proximity to a number of residential areas. The R&P TEOM 1400ab, measures particulate matter with a diameter of less than 10µm using a gravimetric air sampling method and can determine mean hourly concentrations. The analysers are housed in air-conditioned and secure cabins.

Both Newry and Mourne District Council and the Environment & Heritage Service in Belfast can access the daily variances of PM10 emissions data remotely via a PC modem/telephone line link up. This system allows exceedences of the objective limits to be identified quickly. It also allows technical errors and equipment malfunctions to be quickly rectified as well as providing a back up database of results.

SO_2

There are three Air Quality Objectives associated with SO_2 concentrations which are equivalent to the EU limit values in the first Air Quality Daughter Directive. These limits are currently referenced in the Local Air Quality Management, Technical Guidance Document TG(03) as a 1 hour mean of 350µg/m^3, not to be exceeded more than 24 times per year and 125µg/m^3 as the 24 hour mean not to be exceeded more than 3 times per year (see Table 1.1), both objectives to be reached by the end of 2004. The third limit is a 15 min mean of 266 µg/m^3, not to be exceeded more than 35 times per year, and to be complied with by the end of 2005.

Newry and Mourne District Council has two continuous SO_2 analyser (Fluorescent Real-Time Analyser Model 100A) located at Trevor Hill and Monaghan Row in Newry City (see Appendix A, figures 1and 2). The location at Trevor Hill is a busy road within the city centre. This is considered as a roadside site and is close to transport links where there is a heavy daily traffic flow. The site at Monaghan Row is located at the council offices. This is considered as an urban background site, due to its close proximity to a number of residential areas. The analysers are housed in air-conditioned and secure cabins.

NO_2

There are two Air Quality Objectives associated with NO_2 concentrations which are, an annual mean of 40µg/m^3 and a 1 hour mean of 200µg/m^3 not to be exceeded more than 18 times per year.

These limits are currently referenced in the Local Air Quality Management, Technical Guidance Document TG(03). These objectives should be met by the end of 2005. These limits are similar to the objectives set out in the first Air Quality Daughter Directive by the EU.

Newry and Mourne District Council has two continuous NO_2 analyser (Fluorescent Real-Time Analyser Model 100A) located at Trevor Hill and Monaghan Row in Newry City (see Appendix A, figures 1 and 2). The location at Trevor Hill is a busy road within the city centre. This is considered as a roadside site and is close to transport links where there is a heavy daily traffic flow. The site at Monaghan Row is located at the council offices. This is considered as an urban background site, due to its close proximity to a number of residential areas. The analyser is housed in an air-conditioned and secure cabin. In June 2006 the automatic analyser at Monaghan Row was relocated to Bridge Street.

QA / QC

Newry and Mourne District Council currently have a QA/QC and Data Management contract with Netcen (AEA Technology Plc). QA/QC audits have been completed on the automatic monitoring equipment currently located within the Council area. This contract has been running since 1st March 2002 and certified calibration results are available to cover this period

2.1.2 NO_2 Diffusion Tube Monitoring Sites

Newry & Mourne District Council currently carries out monitoring of NO_2 by diffusion tubes at 28 sites within its District, illustrated in Figure 2 Appendix A. The number of diffusion tube sites increased from 9 to 30 in August 2005. The NO_2 diffusion tubes are prepared and analysed by Harwell Scientifics Laboratories. This laboratory takes part in the NO_2 Network QA/QC Field Intercomparison. The tubes are prepared by coating the grids in a 50% v/v solution of the absorbent, triethanolamine (TEA) in water. Analysis is carried out using using a segmented flow autoanalyser with ultraviolet detection.

The site at Trevor Hill is a collocation site with a continuous NOx monitor and is also a triplicate NO_2 diffusion tube site. The site at Monaghan Row, which is part of the UK NO_2 Network, is a collocation site with a continuous NOx monitor. Details are given in Table 2.1 above.

2.1.3 SO_2 Diffusion Tube Monitoring Sites

Newry and Mourne District Council no longer undertakes monitoring of SO_2 by diffusion tubes within the district.

2.2 NEW MONITORING

Newry and Mourne District Council established a new automatic Air Quality Monitoring Station at Bridge Street in Newry City in June 2006 to monitor PM_{10} and NO_2. To accommodate this site the NO2 analyser was removed from the Monaghan Row site and the PM10 monitor was removed from the Kilkeel site.

2.3 2005 and 2006 MONITORING RESULTS AND COMPARISON WITH AQS OBJECTIVES

2.3.1 PM_{10} (Automatic Monitoring Station)

Data Summary – Monaghan Row 1st January 2005 to 31st December 2005

Ratified data capture of 95.3% for PM_{10} was reported over the period 1st January to 31st December 2005. Data capture during this monitoring period met the review and assessment target of 90% for ratified data sets. There were no significant periods of lost data throughout the monitoring period.

PM_{10} concentrations were recorded in the DoE Northern Ireland LOW band throughout the period. The DoE Northern Ireland objective value of 50 µg/m^3 based on daily gravimetric equivalent data was exceeded on 7 occasions during the period. The objective allows up to 35 exceedences in a year. The annual mean concentration of 19-µg/m^3 gravimetric equivalent was below the objective value of 40 µg/m^3.

Table 2.4 PM_{10} exceedences at Monaghan Row – 1st January 2005 to 31st December 2005

Pollutant	Air Quality Regulations (Northern Ireland) 2003	Exceedences	Days
PM_{10} Particulate Matter (Gravimetric)	Daily Mean > 50 µg/m3	7	7
PM_{10} Particulate Matter (Gravimetric)	Annual mean > 40 µg/m3	0	-

Data Summary – Monaghan Row 1st January 2006 to 31st December 2006

Ratified data capture of 96.4% for PM_{10} was reported over the period 1st January to 31st December 2006. Data capture during this monitoring period met the review and assessment target of 90% for ratified data sets. There were no significant periods of lost data throughout the monitoring period.

PM_{10} concentrations were recorded in the DoE Northern Ireland LOW band throughout the period. The DoE Northern Ireland objective value of 50 µg/m^3 based on daily gravimetric equivalent data was exceeded on 8 occasions during the period. The objective allows up to 35 exceedences in a year. The annual mean concentration of 21-µg/m^3 gravimetric equivalent was below the objective value of 40 µg/m^3.

Table 2.5 PM_{10} exceedences at Monaghan Row – 1st January 2006 to 31st December 2006

Pollutant	Air Quality Regulations (Northern Ireland) 2003	Exceedences	Days
PM_{10} Particulate Matter (Gravimetric)	Daily Mean > 50 µg/m3	8	8
PM_{10} Particulate Matter (Gravimetric)	Annual mean > 40 µg/m3	0	-

Data Summary – Trevor Hill 1st January 2005 to 31st December 2005

Ratified data capture of 98.7% for PM_{10} was reported over the period 1st January to 31st December 2005. Data capture during this monitoring period met the review and assessment target of 90% for ratified data sets. There was no significant data loss across the period.

PM_{10} concentrations were recorded in the DoE Northern Ireland LOW band throughout the period. The DoE Northern Ireland objective value of 50 µg/m^3 based on daily gravimetric equivalent data was exceeded on 23 occasions during the monitoring period. The annual mean TEOM concentration of 24 µg/m^3 gravimetric equivalent was below the objective value of 40 µg/m^3.

Table 2.6: PM_{10} exceedences at Trevor Hill - 1st January 2005 to 31st December 2005

Pollutant	Air Quality Regulations (Northern Ireland) 2003	Exceedences	Days
PM_{10} Particulate Matter (Gravimetric)	Daily Mean > 50 µg/m3	23	23
PM_{10} Particulate Matter (Gravimetric)	Annual mean > 40 µg/m3	0	-

Data Summary – Trevor Hill 1st January 2006 to 31st December 2006

Ratified data capture of 93.4% for PM_{10} was reported over the period 1st January to 31st December 2006. Data capture during this monitoring period met the review and assessment target of 90% for ratified data sets. There was no significant data loss across the period.

PM_{10} concentrations were recorded in the DoE Northern Ireland LOW band throughout the period. The DoE Northern Ireland objective value of 50 µg/m^3 based on daily gravimetric equivalent data was exceeded on 41 occasions during the monitoring period. The annual mean

TEOM concentration of 35 µg/m^3 gravimetric equivalent was below the objective value of 40 µg/m^3.

Table 2.7: PM_{10} exceedences at Trevor Hill - 1st January 2006 to 31st December 2006

Pollutant	Air Quality Regulations (Northern Ireland) 2003	Exceedences	Days
PM_{10} Particulate Matter (Gravimetric)	Daily Mean > 50 µg/m3	41	41
PM_{10} Particulate Matter (Gravimetric)	Annual mean > 40 µg/m3	0	-

Data Summary – Newry Street, Kilkeel 1st January 2005 to 31st December 2005

Ratified data capture of 86.9 % for PM_{10} was reported over the period 1st January to 31st December 2005. Data capture during this monitoring period below the review and assessment target of 90% for ratified data sets.

PM_{10} concentrations were recorded in the DoE Northern Ireland LOW band throughout the period. The DoE Northern Ireland objective value of 50 µg/m^3 based on daily gravimetric equivalent data was exceeded on 1 occasion during the period. The objective allows up to 35 exceedences in a year. The annual mean concentration of 16-µg/m^3 gravimetric equivalent was below the objective value of 40 µg/m^3.

Table 2.4 PM_{10} exceedences at Newry Street, Kilkeel – 1st January 2005 to 31st December 2005

Pollutant	Air Quality Regulations (Northern Ireland) 2003	Exceedences	Days
PM_{10} Particulate Matter (Gravimetric)	Daily Mean > 50 µg/m3	1	1
PM_{10} Particulate Matter (Gravimetric)	Annual mean > 40 µg/m3	0	-

Data Summary – Bridge Street 29th June 2006 to 31st December 2006

Ratified data capture of 99% for PM_{10} was reported over the period 29th June to 31st December 2006. Data capture during this monitoring period met the review and assessment target of 90% for ratified data sets. There was no significant data loss across the period.

PM_{10} concentrations were recorded in the DoE Northern Ireland LOW band throughout the period. The DoE Northern Ireland objective value of 50 µg/m^3 based on daily gravimetric equivalent data was exceeded on 12 occasions during the monitoring period. The annual mean TEOM concentration of 26 µg/m^3 gravimetric equivalent was below the objective value of 40 µg/m^3.

Table 2.8: PM_{10} exceedences at Bridge – 29th June 2006 to 31st December 2006

Pollutant	Air Quality Regulations (Northern Ireland) 2003	Exceedences	Days
PM_{10} Particulate Matter (Gravimetric)	Daily Mean > 50 µg/m3	12	12
PM_{10} Particulate Matter (Gravimetric)	Annual mean > 40 µg/m3	0	-

2.3.2 SO_2 (Automatic Monitoring Station)

Data Summary – Monaghan Row 1st January 2005 to 31st December 2005

Ratified data capture of 93.7% for SO_2 was reported over the period 1st January 2005 to 31st December 2005. Data capture during this monitoring period met the review and assessment target of 90% for ratified data sets. There was no significant data loss across the period.

SO_2 concentrations were recorded in the DoE Northern Ireland LOW band throughout the period. The maximum 15-minute mean of 101µg/m^3 was below the DoE Northern Ireland 15-minute objective value of 266 µg/m^3. The maximum hourly mean of 82 µg/m^3 was below the objective value of 350µg/m^3. The maximum daily mean of 33µg/m^3 was below the objective of 125µg/m^3.

Table 2.9 SO_2 exceedences at Monaghan Row – 1st January 2005 to 31st December 2005

Pollutant	Air Quality Regulations (Northern Ireland) 2003	Exceedences	Days
Sulphur Dioxide	15-Minute Mean > 266 µg/m^3	0	0
Sulphur Dioxide	Hourly Mean > 350 µg/m^3	0	0
Sulphur Dioxide	Daily Mean > 125 µg/m^3	0	0

Data Summary – Monaghan Row 1st January 2006 to 31st December 2006

Ratified data capture of 97.4% for SO_2 was reported over the period 1st January 2006 to 31st December 2006. Data capture during this monitoring period met the review and assessment target of 90% for ratified data sets. There was no significant data loss across the period.

SO_2 concentrations were recorded in the DoE Northern Ireland LOW band throughout the period. The maximum 15-minute mean of 138µg/m^3 was below the DoE Northern Ireland 15-minute objective value of 266 µg/m^3. The maximum hourly mean of 106 µg/m^3 was below the objective value of 350µg/m^3. The maximum daily mean of 40µg/m^3 was below the objective of 125µg/m^3.

Table 2.10 SO_2 exceedences at Monaghan Row – 1st January 2006 to 31st December 2006

Pollutant	Air Quality Regulations (Northern Ireland) 2003	Exceedences	Days
Sulphur Dioxide	15-Minute Mean > 266 µg/m^3	0	0
Sulphur Dioxide	Hourly Mean > 350 µg/m^3	0	0
Sulphur Dioxide	Daily Mean > 125 µg/m^3	0	0

Data Summary – Trevor Hill 1st January 2005 to 31st December 2005

Ratified data capture of 97.9% for SO_2 was reported over the period 1st January 2005 to 31st December 2005. Data capture during this monitoring period met the review and assessment target of 90% for ratified data sets. There was no significant data loss across the period.

SO_2 concentrations were recorded in the DoE Northern Ireland LOW band throughout the period. The maximum 15-minute mean of 82µg/m^3 was below the objective value of 266 µg/m^3. The

maximum hourly mean of 72µg/m^3 was below the objective value of 350 µg/m^3. The maximum daily mean of 32µg/m^3 was below the objective of 125 µg/m^3.

Table 2.11: SO_2 exceedences at Trevor Hill - 1st January 2005 to 31st December 2005

Pollutant	Air Quality Regulations (Northern Ireland) 2003	Exceedences	Days
Sulphur Dioxide	15-Minute Mean > 266 µg/m^3	0	0
Sulphur Dioxide	Hourly Mean > 350 µg/m^3	0	0
Sulphur Dioxide	Daily Mean > 125 µg/m^3	0	0

Data Summary – Trevor Hill 1st January 2006 to 31st December 2006

Ratified data capture of 86.4% for SO_2 was reported over the period 1st January 2006 to 31st December 2006. Data capture during this monitoring period did not meet the review and assessment target of 90% for ratified data sets. The reduced data capture in this instance arose due to a breakdown in the analyser between 13th June until 30th June.
SO_2 concentrations were recorded in the DoE Northern Ireland LOW band throughout the period. The maximum 15-minute mean of 80µg/m^3 was below the objective value of 266 µg/m^3. The maximum hourly mean of 64µg/m^3 was below the objective value of 350 µg/m^3. The maximum daily mean of 30µg/m^3 was below the objective of 125 µg/m^3.

Table 2.12: SO_2 exceedences at Trevor Hill - 1st January 2006 to 31st December 2006

Pollutant	Air Quality Regulations (Northern Ireland) 2003	Exceedences	Days
Sulphur Dioxide	15-Minute Mean > 266 µg/m^3	0	0
Sulphur Dioxide	Hourly Mean > 350 µg/m^3	0	0
Sulphur Dioxide	Daily Mean > 125 µg/m^3	0	0

2.3.3 NO_2 (Automatic Monitoring Station)

Data Summary – Monaghan Row 1st January 2006 to 31st October 2006

Note: The NO2 automatic analyser that was used to measure concentrations at Monaghan Row during 2006 was transferred to a new monitoring location at Bridge Street in Newry in November 2006.

Data Summary – Monaghan Row 1st January 2005 to 31st December 2005

Ratified data capture of 99.2% for NO_2 was reported over the period 1st January 2005 to 31st December 2005. Data capture during this monitoring period met the review and assessment target of 90% for ratified data sets. There was no significant data loss across the period.

NO_2 concentrations were recorded in the Defra LOW band throughout the period. The annual mean of 16µg/m^3 was below the objective value of 40µg/m^3. There were no exceedences above the hourly mean limit of 200µg/m^3.

Table 2.13: NO_2 exceedences at Monaghan Row – 1st January 2003 to 31st December 2004

Pollutant	Air Quality Regulations (Northern Ireland) 2003	Exceedences	Days
Nitrogen Dioxide	Annual Mean > 40 µg/m^3	0	-
Nitrogen Dioxide	Hourly Mean > 200 µg/m^3	0	0

Data Summary – Trevor Hill 1st January 2005 to 31st December 2005

Ratified data capture of 99.3% for NO_2 was reported over the period 1st January 2005 to 31st December 2005. Data capture during this monitoring period met the review and assessment target of 90% for ratified data sets. There was no significant data loss across the period.

NO_2 concentrations were recorded in the Defra LOW band throughout the period. The annual mean of 33µg/m^3 was below the objective value of 40µg/m^3. There were 3 exceedences above the hourly mean limit of 200µg/m^3.

Table 2.14 NO_2 exceedences at Trevor Hill - 1st January 2005 to 31st December 2005

Pollutant	Air Quality Regulations (Northern Ireland) 2003	Exceedences	Days
Nitrogen Dioxide	Annual Mean > 40 µg/m^3	3	2
Nitrogen Dioxide	Hourly Mean > 200 µg/m^3	0	0

Data Summary – Trevor Hill 1st January 2006 to 31st December 2006

Ratified data capture of 64% for NO_2 was reported over the period 1st January 2006 to 31st December 2006. Data capture during this monitoring period did not meet the review and assessment target of 90% for ratified data sets. This was despite the fact that the analyser had passed all quality checks during independent QA/QC audits covering this period. Netcen who provide independent QA/QC checks on this analyser and data ratification took the decision to

exclude data from this analyser for the time period September 2006 until April 2007. It was their view that during this time period the instrument was displaying a fault which resulted in unusually high NO2 concentrations.

NO_2 concentrations were recorded in the Defra LOW band throughout the period. The annual mean of 41µg/m^3 was above the objective value of 40µg/m^3. There were no exceedences above the hourly mean limit of 200µg/m^3.

Table 2.15 NO_2 exceedences at Trevor Hill - 1st January 2006 to 31st December 2006

Pollutant	Air Quality Regulations (Northern Ireland) 2003	Exceedences	Days
Nitrogen Dioxide	Annual Mean > 40 µg/m^3	3	2
Nitrogen Dioxide	Hourly Mean > 200 µg/m^3	0	0

Data Summary – Bridge Street 29th June 2006 to 31st December 2006

Ratified data capture of 95.4% for NO_2 was reported over the period 29th June 2005 to 31st December 2006. Data capture during this monitoring period met the review and assessment target of 90% for ratified data sets. There was no significant data loss across the period.

NO_2 concentrations were recorded in the Defra LOW band throughout the period. The annual mean of 24µg/m^3 was below the objective value of 40µg/m^3. There were 0 exceedences above the hourly mean limit of 200µg/m^3.

Table 2.16 NO_2 exceedences at Bridge Street – 29th June 2006 to 31st December 2006

Pollutant	Air Quality Regulations (Northern Ireland) 2003	Exceedences	Days
Nitrogen Dioxide	Annual Mean > 40 µg/m^3	-	-
Nitrogen Dioxide	Hourly Mean > 200 µg/m^3	0	0

2.4.1 NO_2 (Diffusion Tube Monitoring)

Table 2.17: Bias Corrected Annual Mean Diffusion Tube Measurements in Newry 2005

Location	Eastings	Northings	2005	
			Annual Mean µg/m3	Number of Months
Trevor Hill, Newry (Roadside)*	308709	326733	30	12
Bridge Street, Newry (Roadside)	308420	325870	33	12
Kilmorey Street, Newry (Roadside)	308729	325871	37	12
Rathfriland Road, Newry (Roadside)	309397	327275	29	10
Water Street, Newry (Roadside)	308684	326596	**40**	12
Balmoral Park, Newry (Urban Background)	309313	327552	14	12
Monaghan Row, Newry (Urban Background)	307852	326757	15	12
Stone Bridge Newry (Kerbside)	308664	326707	31	11
Kildare Street Newry (Kerbside)	308688	326665	30	12

Table 2.17: Bias Corrected Annual Mean Diffusion Tube Measurements in Newry 2006

Location	Eastings	Northings	2006	
			Annual Mean µg/m3	Number of Months
Patrick Street (Kerbside)	308043	326608	37	12
Dominic/Francis Street (Kerbside)	308168	326184	35	12
197 Dublin Road, Newry (Kerbside)	307985	321179	29	12
Basin View Terrace, Newry (Kerbside)	308237	325611	35	12
60 Bridge Street, Newry (Kerbsideside)	308329	325794	28	11
18 Bridge Street, Newry (Kerbside)	308419	325866	34	12
33 Kilmorey Street, Newry (Kerbside)	308666	325911	**41**	12
52 Kilmorey Street Newry (Kerbside)	308728	325872	**46**	12
Lower Water Street Newry (Kerbside)	308655	326480	36	12
Water Street Newry (Kerbside)	308682	326593	39	12
High Street Newry (Kerbside)	308802	326378	30	12
North Street Newry (Kerbside)	308714	326614	28	10
18 St Mary's Street Newry (Kerbside)	308472	326176	34	12
42 St Mary's Street Newry (Kerbside)	308493	326118	30	12
Canal Street Newry (Kerbside)	308536	326867	35	11
7 New Street Newry (Kerbside)	308564	326911	34	12
59 Canal Street Newry (Kerbside)	308468	326988	**52**	12
Armagh Road Newry (Kerbside)	307691	328125	23	12
Fairlawns Way Newry (Kerbside)	307493	328471	22	12
Glinn Ree Court Newry (Kerbside)	308877	327148	30	12
Trevor Hill Monitoring Station Newry (Kerbside)	308709	326138	34	9
Kildare Street Newry (Kerbside)	308688	326665	31	11
Stone Bridge Newry (Kerbside)	308664	326707	**40**	11
Sandy Street Newry (Kerbside)	308927	326863	**44**	11

Location	Eastings	Northings	2006	
			Annual Mean µg/m3	Number of Months
Balmoral Park Newry (Urban Background)	309191	327474	21	10
Rathfriland Road Newry (Kerbside)	309410	327291	31	12
Derrybeg Villas Newry (Kerbside)	307163	327556	31	12
Edward Street Newry (Kerbside)	308480	326753	25	12
52 Abbey Yard Newry (Kerbside)	308734	325990	28	12
Monaghan Row Newry (Urban Background)	307850	326742	16	12

3.0 New Developments – Since the Updating Screening and Assessment Report Oct 2006

3.1 Industrial Processes

3.1.1 Part A Industrial Processes

No new Part A processes were authorised for operation.

3.1.2 Part B & C Industrial Processes

No new Part B and C processes were authorized for operation.

3.1.3 Other Industrial Processes

3.1.3.1 New landfill, Quarrying and Mineral Processes

No new quarrying operations have been authorised.

A number of small sand extraction facilities have opened in the Kilkeel area.

3.1.3.2 New Fuel Storage Depots

No new major fuel storage depots, either in or close to the Newry and Mourne District area, have been identified.

3.1.3.3 Small Boilers

Newry and Mourne District Council is not aware of any significant changes to $>5MW_{(thermal)}$ fuel plants and processes.

3.1.4 Industrial Process Closures

Part B & C industrial processes closures in Newry & Mourne District Council are illustrated in Table 3.2 below

Table 3.2: Industrial Process Closures in Newry and Mourne District Council Area

Name & Address	Location	Prescribed Process	File Reference Number	Date of Revocation
Anglo Beef Processors	Newry	Slaughtering, treatment & processing	AP4/98/NM/BK1-3	20/10/06

3.2 Transport

3.2.1 New Road Developments

See section 3.2.*2 Significant Changes to Existing Roads* below.

3.2.2 Significant Changes to Existing Roads

The A1 Belfast to Dublin road has undergone extensive upgrading between Banbridge and Sheepbridge (approximately 5 miles outside Newry City) which was completed in late 2006. The works included the upgrading of the existing single lane carriageway to a dual carriageway standard. Associated works include the construction of new sections of the road which incorporates the engineering of cuts and fills in the local landscape. Further upgrading planned between Sheepbridge and the border with the Republic of Ireland has commenced. It is proposed to undertake this work in a two-phased approach. The first phase which involved the creation of a new road between the Cloghogue Roundabout and the border with the Republic of Ireland has been completed. The second phase involves the upgrading of the road between Sheepbridge and the Cloghogue roundabout.

3.2.3 Newly Identified Public Exposure to Vehicle Emissions

No roads have been identified with annual average daily traffic flow (AADTF) greater than 10,000 vehicles per day, which have experienced large increases (25% or more) in traffic flow, since the USA in October 2006. Local Authorities are required to consider whether there are any of the following in their area, either new since the last Report, or newly identified:

1. Narrow congested streets meeting the following criteria:
   - Residential properties are within 5m of the kerb.
   - Average traffic speeds are 50kph or less.
   - The carriageway is less than 10m wide, and
   - AADTF is greater than 10,000.

2. Busy streets where people may spend 1 hour or more close to traffic (most likely in streets of shops, bars, cafes etc.), meeting the following criteria:
   - Public exposure for 1 hour or more within 5m of the kerb
   - AADT > 10,000 vehicles per day.

There are no new, or newly identified streets meeting these criteria since the previous report.

3.2.4 Other Transport Sources

As well as road vehicles, public exposure to emissions from planes, buses, trains, ships etc. must also be considered.

3.2.4.1 Trains

- There are no new, or newly identified, locations where diesel locomotives are regularly stationary for five minutes or more.

3.2.4.2 Airports

There are no airports in the Newry and Mourne District or neighbouring authorities that have a throughput of 5 million passengers per year and/or 500,000 tonnes of freight.

3.2.4.3 Bus Stations

The main bus stations within the Newry and Mourne District Council area have less than 1000 bus movements per day. There are no newly identified bus stations with more than 1000 bus movements per day, and no bus stations where movements have increased to more than 1000 per day.

3.2.4.4 Shipping

Newry and Mourne District has one port located at Warrenpoint. However the port does not have more than 5,000 shipping movements per year

3.3 New Developments - Residential, Commercial and Public

3.3.1 New Housing Developments

There are no new significant housing developments proposed for the Newry and Mourne District area that have full planning permission granted.

3.3.2 New Commercial Developments

There are no new significant commercial developments (e.g. retail parks, office blocks, leisure centres). However, planning application has been received for an extension to the Buttercrane Centre which has the potential to increase traffic volumes within the existing AQMA, Bridge Street.

3.3.3 New Public Developments

New public developments such as schools, hospitals, stations, major car parks require consideration as they may impact on local traffic flow.

No new public developments have been confirmed since the 3rd Stage Review and Assessment.

4.0 Conclusions and Recommendations

4.1 Progress in developing Air Quality Action Plan for designated AQMA's

In December 2006 the Council organised an Air Quality Forum to which all interested parties (public and non-public bodies and residents) were invited, to provide an opportunity to inform and consult with all interested parties in relation to the development of an Action Plan for the AQMA's designated by the Council.

The purpose of the Forum was to:

- Provide an update of the steps the Council has taken to date and the action that is now required.
- With the help of a guest speaker inform the participants about how other local authorities have tackled the same type of issues now being faced by this Council.
- Seek nominations for a Working Group to develop the Action Plan.

Nominations for the Working Group were agreed and the first meeting of the Working Group took place in February 2007. The Council is meeting with the Working Group members to develop the Action Plan.

NO2 difussion tube monitoring data for 2006 in Sandy Street, Newry, which is outside of the existing AQMAs, is showing exceedences of the annual mean objective. This monitoring location was installed following the detailed assessment and will be summarised in relevant LAQM reports as information is available. This location is already being considered within the action plan (in order to avoid the Council preparing separate action plans over different timescales), but would formally be included within any AQMA at the next stage of reporting of LAQM if required. It may also be necessary to review the AQMAs in order to consider: 1) a single AQMA; 2) change in size of AQMA; and 3) pollutants to be included in AQMA.

4.2 Local Air Quality Monitoring Network Review

The Council employed the services of Bureau Veritas Air Qulaity Consultants to review the current air quality monitoring methodology/locations employed by the Council. This report was completed with the following main recommendations being made.

1. Re-locate the Monaghan Row continuous monitoring station to a more central location within the geographical bowl which surrounds Newry City centre.

2. Re-locate the Bridge Street continuous monitoring station to an area with relevant exposure e.g. the junction with Canal Street, Catherine Street and Erskine Street.

3. Install a NO2 analyser into the relocated Monaghan Row continuous monitoring station.

4. Remove the two existing SO_2 analysers from Monaghan Row and Trevor Hill.

5. Replace/upgrade the non-compliant TEOM particulate measurement methods to ensure EU equivalence criteria are met.

6. Maintain the existing data management contract to ensure Quality Assurance and Quality Control of the recorded data.

7. Maintain the existing service contract to cover new and existing instruments.

8. A longer term of investment into the network should be planned in order to replace old and out-dated equipment where such equipment comes to the end of its purposeful life.

The Council accepted the recommendation from the air quality monitoring review. Grant aid support from the Department of Environment to implement the recommendations has been obtained. Recommendation 1 and 2 concerning the relocation of the two continuous monitoring stations are currently being investigated.

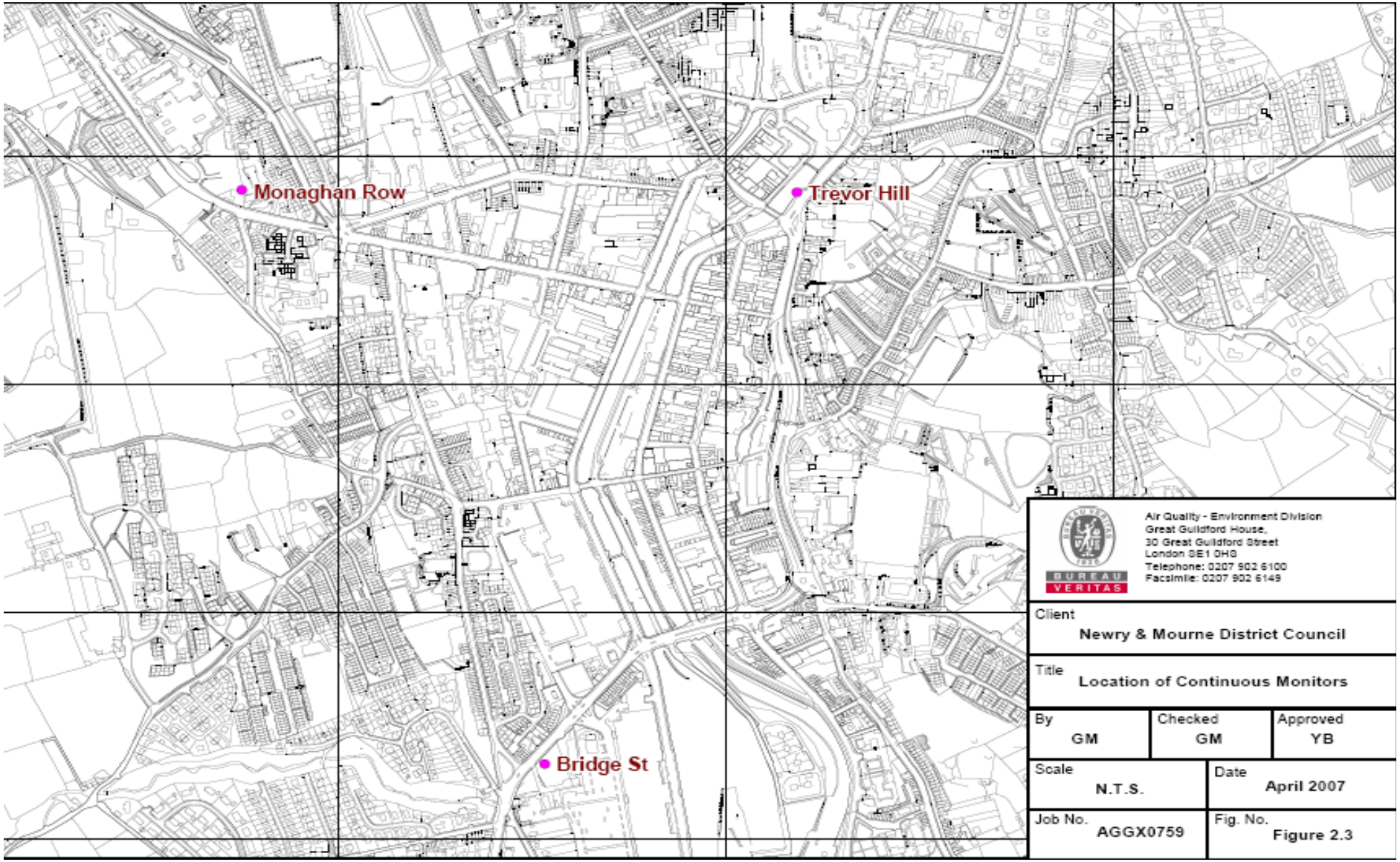
APPENDIX A

NEWRY AND MOURNE DISTRICT COUNCIL

Local Air Quality Monitoring Maps

Local Air Quality Monitoring Stations

Monaghan Row & Trevor Hill Sites



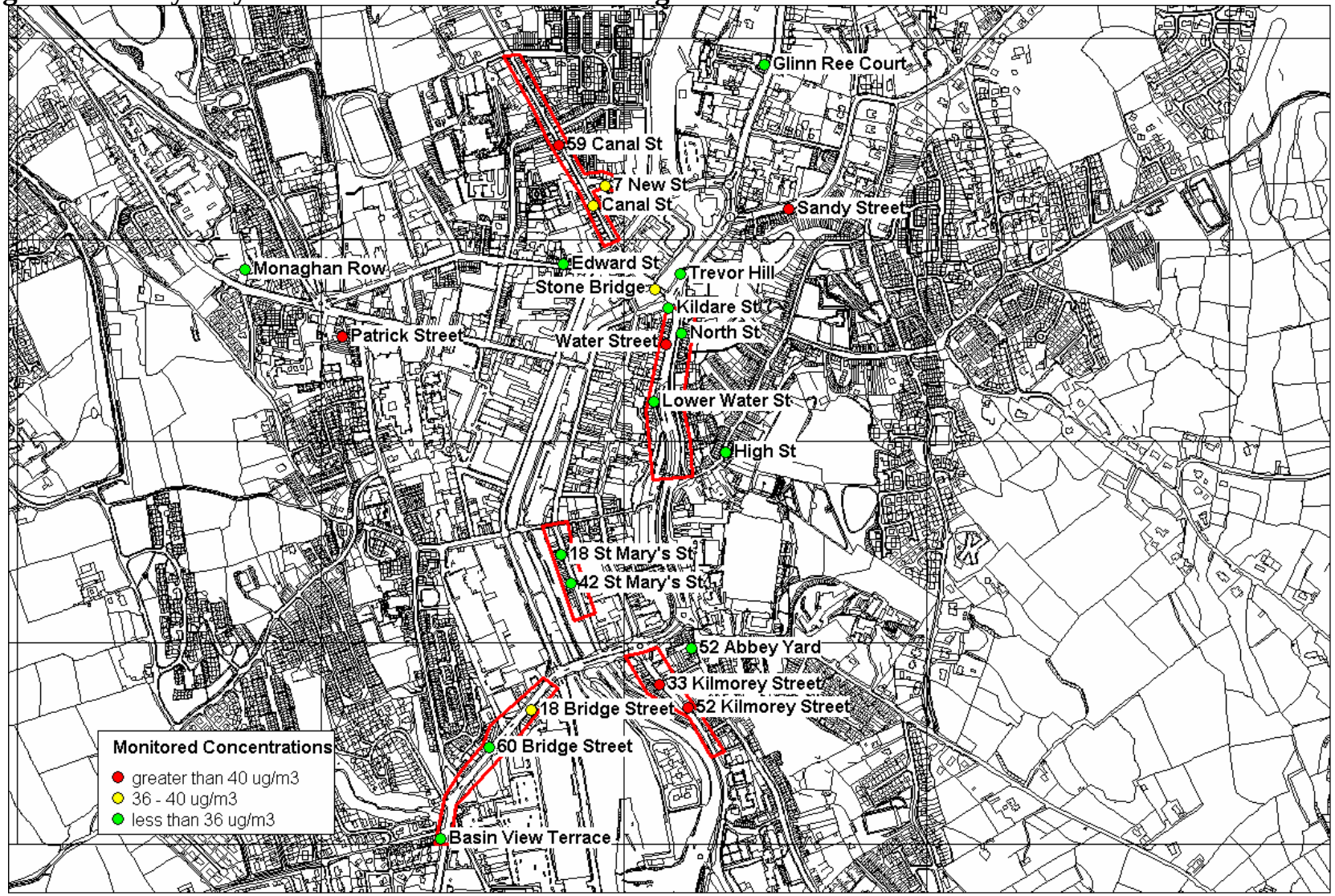
Air Quality - Environment Division
Great Guildford House,
30 Great Guildford Street
London SE1 0HS
Telephone: 0207 902 6100
Facsimile: 0207 902 6149

Client: Newry & Mourne District Council		
Title: Location of Continuous Monitors		
By: GM	Checked: GM	Approved: YB
Scale: N.T.S.	Date: April 2007	
Job No.: AGGX0759	Fig. No.: Figure 2.3	

Local Air Quality Monitoring Sites

NOx Diffusion Tube Locations In Newry City

Figure 2: Newry City NO2 Diffusion Tube Monitoring Sites



APPENDIX B

NOx DATA

NEWRY AND MOURNE DISTRICT COUNCIL 2006

Table 1: $N0_2$ Results (January 2005 - December 2005)

Newry & Mourne District Council - $N0_2$ Results (January 2005 - December 2005)

Site No.	1		2		3		4		5		6		7		8		9	
	ug m^{-3}	ppb	ug m^{-3}	ppb	ug m^{-3}	ppb	ug m^{-3}	ppb	ug m^{-3}	ppb	ug m^{-3}	ppb	ug m^{-3}	ppb	ug m^{-3}	ppb	ug m^{-3}	ppb
Month																		
Jan-05	13	7	38	20	11	6	26	14	28	15	27	14	23	12	39	20	26	14
Feb-05	9	5	34	18	12	6	27	14	27	14	30	16	23	12	9	5	28	15
Mar-05	11	6	41	21	11	6	41	21	33	17	39	20	20	10	41	21	32	17
Apr-05	17	9	36	19	6	3	14	7	20	10	18	9	21	11	19	10	19	10
May-05	28	15	55	29	22	12	26	14	28	15	22	12	39	20	16	8	41	21
Jun-05	20	10	39	20	20	10	42	22	-	-	38	20	37	19	26	14	-	-
Jul-05	19	10	32	17	21	11	22	12	20	10	21	11	33	17	36	19	22	12
Aug-05	10	5	31	16	12	6	22	12	26	14	21	11	30	16	27	14	24	13
Sep-05	14	7	51	27	14	7	39	20	43	23	40	21	47	25	69	36	41	21
Oct-05	15	8	57	30	20	10	51	27	53	28	54	28	64	34	79	41	48	25
Nov-05	22	12	63	33	23	12	55	29	59	31	52	27	50	26	76	40	43	23
Dec-05	25	13	68	36	24	13	38	20	53	28	48	25	57	30	69	36	-	-
Mean	17	9	45	24	16	9	34	18	35	19	34	18	37	19	42	22	32	17
Bias Adj	**15**		**40**		**14**		**30**		**31**		**30**		**33**		**37**		**29**	

1	***Monaghan Row**
2	***Water Street**
3	**Balmoral Park North**
4	**Trevor Hill**
5	**Stone Bridge**
6	**Kildare Street**
7	**Bridge Street**
8	**Kilmorey Street**
9	**Rathfriland Street**

NS = No Sample
Bias Factor = 0.88

Table 2: $N0_2$ Results (January 2006 - December 2006. Sites 1 to 9)

Newry & Mourne District Council - $N0_2$ Results (January 2006 - December 2006)

Site No.	1		2		3		4		5		6		7		8		9	
	ug m^{-3}	ppb	ug m^{-3}	ppb	ug m^{-3}	ppb	ug m^{-3}	ppb	ug m^{-3}	ppb	ug m^{-3}	ppb	ug m^{-3}	ppb	ug m^{-3}	ppb	ug m^{-3}	ppb
Month																		
Jan-06	45	24	1	0	37	19	43	22	47	24	56	29	76	40	53	28	38	20
Feb-06	62	32	41	21	46	24	42	22	NS	NS	55	28	70	37	73	38	45	23
Mar-06	56	29	41	21	30	16	50	26	39	20	55	29	71	37	67	35	35	18
Apr-06	62	32	40	21	27	14	46	24	35	18	32	17	78	40	52	27	71	37
May-06	50	26	32	17	32	17	49	25	31	16	47	25	59	31	60	31	29	15
Jun-06	53	28	27	14	31	16	42	22	30	16	50	26	70	36	52	27	29	15
Jul-06	45	23	32	16	32	17	42	22	32	17	42	22	65	34	43	23	25	13
Aug-06	46	24	27	14	19	10	41	21	22	12	32	16	61	32	54	28	24	13
Sep-06	43	22	78	40	43	22	46	24	84	43	35	18	13	7	56	29	57	29
Oct-06	34	18	70	37	51	26	55	28	42	22	29	15	19	10	71	37	68	35
Nov-06	40	21	82	43	52	27	49	25	46	24	47	24	27	14	76	40	75	39
Dec-06	33	17	71	37	49	25	39	20	28	15	39	20	23	12	52	27	60	31
Mean	47	25	45	23	37	19	45	24	36	19	43	22	53	27	59	31	46	24
Bias Adj	**37**		**35**		**29**		**35**		**28**		**34**		**41**		**46**		**36**	

1	**Patrick Street**
2	**Dominic/Francis Street**
3	**197 Dublin Road**
4	**Basin View Terrace**
5	**60 Bridge Street**
6	**18 Bridge Street**
7	**33 Kilmorey Street**
8	**52 Kilmorey Street**
9	**Lower Water Street**

NS = No Sample

Bias Factor = 0.78

Table 3: NO_2 Results (January 2006 - December 2006. Sites 10 to 18)

Site No.	10		11		12		13		14		15		16		17		18	
	ug m^{-3}	ppb	ug m^{-3}	ppb	ug m^{-3}	ppb	ug m^{-3}	ppb	ug m^{-3}	ppb	ug m^{-3}	ppb	ug m^{-3}	ppb	ug m^{-3}	ppb	ug m^{-3}	ppb
Month																		
Jan-06	54	28	44	23	NS	NS	37	19	37	19	NS	NS	57	29	79	41	25	13
Feb-06	64	33	48	25	52	27	44	23	42	22	59	31	59	31	78	41	33	17
Mar-06	60	31	43	22	45	23	37	19	40	21	51	27	49	25	72	37	24	13
Apr-06	30	16	37	19	37	19	2	1	33	17	52	27	51	27	70	36	20	11
May-06	61	32	33	17	40	21	38	20	32	17	45	23	50	26	75	39	20	10
Jun-06	62	32	31	16	38	20	35	18	33	17	39	20	48	25	80	42	18	9
Jul-06	54	28	32	17	NS	NS	31	16	30	15	38	20	44	23	74	38	15	8
Aug-06	59	31	26	13	33	17	26	14	28	14	35	18	35	18	64	33	18	9
Sep-06	44	23	36	19	44	23	73	38	61	32	53	27	33	17	52	27	37	19
Oct-06	38	20	43	23	48	25	70	36	55	29	52	27	39	20	58	30	44	23
Nov-06	47	25	50	26	48	25	68	35	41	21	62	32	35	18	47	25	47	25
Dec-06	33	17	43	22	41	21	63	33	37	19	51	27	28	15	48	25	46	24
Mean	50	26	39	20	35	18	44	23	39	20	45	23	44	23	66	34	29	**15**
Bias Adj	**39**		**30**		**28**		**34**		**30**		**35**		**34**		**52**		**23**	

10	**Water Street**
11	**High Street**
12	**North Street**
13	**18 St Marys Street**
14	**42 St Marys Street**
15	**Canal Street**
16	**7 New Street**
17	**59 Canal Street**
18	**Armagh Road**

	NS = No Sample

Bias Factor = 0.78

Table 4: NO_2 Results (January 2006 - December 2006. Sites 19 to 27)

Site No.	19		20		21		22		23		24		25		26		27	
	ug m^{-3}	ppb	ug m^{-3}	ppb	ug m^{-3}	ppb	ug m^{-3}	ppb	ug m^{-3}	ppb	ug m^{-3}	ppb	ug m^{-3}	ppb	ug m^{-3}	ppb	ug m^{-3}	ppb
Month																		
Jan-06	35	18	40	21	57	30	48	25	52	27	47	25	23	12	45	24	37	19
Feb-06	28	15	50	26	49	26	NS	NS	54	28	69	36	23	12	50	26	47	24
Mar-06	26	14	44	23	44	23	48	25	50	26	64	33	17	9	43	23	36	19
Apr-06	24	13	39	20	45	23	44	23	46	24	63	33	NS	NS	43	22	40	21
May-06	21	11	38	20	41	21	47	25	44	23	53	28	NS	NS	39	20	31	16
Jun-06	22	11	38	20	44	23	45	24	41	21	53	27	11	6	14	7	32	17
Jul-06	23	12	32	17	NS	NS	NS	NS	NS	NS	54	28	10	5	40	21	27	14
Aug-06	17	9	33	17	30	16	29	15	30	15	38	20	10	5	32	16	29	15
Sep-06	42	22	34	18	29	15	NS	NS	NS	NS	NS	NS	34	18	39	20	46	24
Oct-06	37	19	40	21	34	18	68	36	73	38	63	33	36	19	41	22	50	26
Nov-06	37	19	42	22	35	18	70	37	73	38	65	34	52	27	52	27	54	28
Dec-06	30	16	33	17	31	16	42	22	55	29	57	30	47	25	39	20	51	26
Mean	28	15	38	20	40	21	44	23	52	27	57	30	26	14	40	21	40	**21**
Bias Adj	**22**		**30**		**31**		**34**		**40**		**44**		**21**		**31**		**31**	

19	**Fairlawns Way**
20	**Glinn Ree Court**
21	**Kildare Street**
22	**Trevor Hill**
23	**Stone Bridge**
24	**Sandy Street**
25	**Balmoral Park**
26	**Rathfriland Road**
27	**Derrybeg Villas**

	NS = No Sample

Bias Factor = 0.78

Table 5: $N0_2$ Results (January 2006 - December 2006. Sites 28 to 30)

Site No.	28		29		30	
	ug m^{-3}	ppb	ug m^{-3}	ppb	ug m^{-3}	ppb
Month						
Jan-06	26	14	31	16	23	12
Feb-06	43	22	43	22	23	12
Mar-06	43	23	38	20	21	11
Apr-06	34	18	35	18	16	9
May-06	33	17	32	17	17	9
Jun-06	33	17	32	17	40	21
Jul-06	29	15	24	12	17	9
Aug-06	27	14	26	14	12	6
Sep-06	30	15	52	27	18	10
Oct-06	30	15	NS	NS	23	12
Nov-06	36	19	67	35	20	10
Dec-06	30	16	49	25	9	5
Mean	33	17	36	19	20	**10**
Bias Adj	**25**		**28**		**16**	

28	**Edward Street**		NS = No Sample
29	**52 Abbey Yard**		
30	**Monaghan Row**	**Bias Factor = 0.78**	